# WORKPLAN TO PERFORM SHALLOW SOIL REMEDIATION EXCAVATION ACTIVITIES - PARCEL A FORMER C-6 FACILITY LOS ANGELES, CALIFORNIA

by

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for

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### BOEING REALTY CORPORATION FORMER C-6 FACILITY LOS ANGELES, CALIFORNIA

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2	Site Plan
3	Parcel A Arsenic Soil Sampling Results & Proposed Remediation Excavation Area



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#### 1. INTRODUCTION AND PURPOSE

This work plan has been prepared to perform a supplemental shallow soil remediation excavation for arsenic-impacted soil along the western boundary of Parcel A at Boeing Realty Corporation's (BRC) Former C-6 Facility (Site), at 19503 South Normandie Avenue in Los Angeles, California. Parcel A is one of four parcels (Parcels A through D) at the Site, as shown on Figures 1 and 2. The following sections of this workplan present a Site background, the shallow soil remediation program, and the general contents of the post-remediation report.



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#### 2. BACKGROUND

### 2.1 Site Description and History

Parcel A occupies approximately 50 acres in the northern portion of the Site (Figure 2). It is bordered by 190<sup>th</sup> Street to the north, railroad tracks and South Normandie Avenue to the east, Parcel C to the south, and Harborgate Way, Parcel B and International Light Metals to the west. Aerial photographs indicate the area was farmland before the 1940s. Industrial use of Parcel A began in 1941, when it was developed as part of an aluminum reduction plant. In 1948, the aluminum reduction plant was converted to a steel manufacturing facility. In 1952, the Douglas Aircraft Company (DAC) used the Site to manufacture aircraft and aircraft components until approximately 1992. Prior to redevelopment, Parcel A contained Buildings 34, 36, 37, 61, 44, 45, 57, 67, and the northern portions of Buildings 29 and 58. From 1992 to 1997, DAC used the buildings primarily for office space and storage.

BRC acquired the Site in 1997. From 1997 to 1998, BRC performed site assessment, remediation and human health risk assessment activities. On 21 April 1998, the Los Angeles Regional Water Quality Control Board (LARWQCB) and the California Department of Toxic Substances Control (DTSC) granted closure for shallow soil in Parcel A. In 1999, Parcel A was sold and redeveloped. Redeveloped land use includes a hotel, retail shops, and a car dealership.

### 2.2 Geologic Setting

The Site is located on the Torrance Plain physiographic area of the West Coast Basin. Groundwater monitoring wells and soil borings drilled at the Site have encountered the Lakewood Formation, which consists of two major Hydrostratigraphic Units; the Bellflower Aquitard and the Gage Aquifer. Groundwater monitoring wells at the Site have only been installed within the Bellflower Aquitard, which extends to a depth of approximately 140 feet below ground surface (bgs). The Bellflower Aquitard below the Site consists of fine-grained soils (predominantly interbedded fine sands, silts, and clays) (Haley & Aldrich, 2002a).

### 2.3 Hydrogeologic Setting

Groundwater at the Site is located in sediments of the Bellflower Aquitard (Haley & Aldrich, 2002a). The uppermost groundwater occurs under water table conditions at depths of approximately 60 to 70 feet bgs. Most of the Site groundwater monitoring wells are screened near the water table, at depths ranging from 55 to 90 feet bgs. No groundwater monitoring wells currently exist in Parcel A, as a result of its redevelopment. Groundwater flow at the Site is predominately to the south, under a gradient of approximately 0.001 feet/feet (Haley & Aldrich, 2002a).



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#### 2.4 Previous Soil Investigation and Remediation

A comprehensive shallow soil investigation, remediation, and human health risk assessment program was performed in Parcel A from 1997 to 1998.

A Phase II Soil Characterization was performed by Kennedy/Jenks Consultants (KJC) on Parcel A in April 1997 (KJC, 1997). One-hundred and eight soil borings were drilled and approximately 550 soil samples were collected in Parcel A and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total recoverable petroleum hydrocarbons (TRPH), polychlorinated biphenyls (PCBs), pesticides, and metals. As a result of this investigation, several areas of concern were identified.

Demolition activities on Parcel A took place in 1997 and 1998. Post-demolition monitoring was performed during the removal of foundations, slabs, and below-grade structures. Remediation excavation activities took place in the areas of concern identified during the Phase II Soil Characterization and during post-demolition monitoring. Remediation excavations were performed in accordance with the LARWQCB-approved *Sampling and Analysis Plan for Demolition Activities*, prepared by Integrated Environmental Services, Inc. (Integrated, 1997a). Approximately 47,800 cubic yards of shallow soil impacted with VOCs, SVOCs, TRPH, PCBs, and/or metals exceeding the target health-based remediation goals (HBRGs), developed by Integrated (Integrated, 1997b), were excavated. Remediation excavation activities were performed on Parcel A in 1997 and 1998. Excavated soils were either disposed of offsite or re-used onsite, depending upon the results of stockpile sampling and analysis. Details of the remediation activities performed on Parcel A are included in various Montgomery Watson reports (Montgomery Watson, 1997a, 1997b, 1997c, and 1998a through 1998k).

Following remediation excavations, a risk assessment was performed to verify that Parcel A met health-based criteria (Integrated, 1998). Based on a review of the post-demolition risk assessment and previous Site investigation and remediation reports, the LARWQCB issued a closure and no further action letter on 21 April 1998, for shallow soils (less than 12 feet bgs) in Parcel A (LARWQCB, 1998). The LARWQCB also indicated that the DTSC's Human and Ecological Risk Division (HERD) agreed with the conclusion in the post-demolition risk assessment and that residual shallow soil impact risks fell within a range of values that HERD determined to be acceptable for the proposed land use, and that the impact risks would not pose significant health risks for future site impacts.

BRC is currently in the process of redeveloping the adjacent Parcel C. During soil remediation activities on Parcel C in 2001, arsenic concentrations exceeding the HBRG of 14 milligrams per kilogram (mg/kg) were detected along the boundary of Parcels A and C (Figure 3). Based on results of the soil sample analyses, shallow soil arsenic impacts on Parcel C were excavated up to the Parcel A/C fence line to an average depth of 4 feet bgs and confirmation samples were collected (Haley & Aldrich, Inc., 2002c). The excavation area on



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Parcel C was then re-graded using non-impacted material. In December 2002, the LARWQCB issued a no further action letter for shallow soil on Parcel C (LARWQCB, 2002).

A supplemental soil investigation was performed on Parcel A (Haley & Aldrich, Inc., 2002b) to evaluate the extent of arsenic impacts detected at the west edge of Parcel A. In August and September 2001, a total of 58 soil samples were collected from 29 soil borings on Parcel A. These 29 soil borings were advanced to approximately 3 feet bgs, and soil samples were collected at 1 foot and 3 feet bgs (Figure 3). The samples were analyzed for arsenic by EPA Method 6010B, and the laboratory reported that arsenic was detected at concentrations ranging from 2.4 to 816 mg/kg (Figure 3).

Soil sampling activities were constrained to a narrow strip of Parcel A between a sewer and utility corridor to the east, and the Parcel A/C boundary to the west. This narrow strip of Parcel A was not excavated or re-graded during the installation of the sewer main in 1998. During installation of the sewer main (Figure 3), the soil in the utility corridor was reportedly excavated to approximately 8 feet bgs. The narrow strip to the west was subsequently used for landscaping after utility installation.

Based on the results of the Parcel A supplemental soil investigation, a narrow strip of arsenic-impacted shallow soil remains along the western boundary of Parcel A. This area is proposed to be excavated as described in the following sections of the workplan.



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#### 3. PROPOSED SOIL REMEDIATION

### 3.1 Soil Remediation Approach

The post-demolition risk assessment for Parcel A, performed by Integrated, was approved by the LARWQCB and the DTSC. The LARWQCB issued a shallow soil closure letter for Parcel A where the HBRG for arsenic was 14 mg/kg. By removing soil with arsenic concentrations exceeding the HBRG, no additional risk assessment calculations will be required to verify the health-protectiveness of the parcel. The proposed soil remediation will consist of excavating soil between the western boundary of Parcel A and the sewer main utility corridor (Figure 3). This linear excavation will extend to the south to sample location PD-213 where the maximum detected arsenic concentration was 9.6 mg/kg. The excavation will extend to the north, until sample analytical results are less than the HBRG. The initial excavation depth will be 5 feet, with samples collected from the sidewalls and base of the excavation. If excavation base sample results exceed the HBRG, the excavation will be deepened until sample results are less than the HBRG. The excavation will be extended to the maximum depth of 12 feet bgs. The approximate volume of the proposed excavation is 900 cubic yards, or 1,440 tons of in-place soil. The excavated soil will be placed in roll-off bins and transported off-site for disposal. The excavation will be backfilled with clean import soil.

### 3.2 Shallow Soil Remediation Implementation

Implementation of the remediation will include the following steps:

- Health and Safety
- Utility clearance
- Shallow soil excavation
- Confirmation sampling
- Decontamination
- Surveying
- Residuals management
- Import soil characterization and backfill
- Data validation
- Preparation of a shallow soil excavation report

Additional information regarding implementation of the soil remediation activities is provided below.



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#### 3.2.1 Health and Safety

In accordance with the federal Occupational Safety and Health Act (OSHA), the work will be performed under a site-specific Health and Safety Plan (HSP) that complies with OSHA standards for potentially hazardous field investigations (29CFR 1910.120). The existing Health and Safety Plan for the BRC Former C-6 Facility will be used by field staff while conducting field activities (Haley & Aldrich, Inc., 2001). This HSP was previously submitted to the LARWQCB.

#### 3.2.2 Utility Clearance

Underground Service Alert of Southern California (USA) and a private utility locator will be used for utility clearance of the excavation area prior to excavation activities.

#### 3.2.3 Shallow Soil Excavation

The fence, concrete curb, and landscape vegetation along the western boundary of Parcel A will be removed prior to soil excavation work. The concrete curb and any asphalt removed (construction debris) will be placed in one roll-off bin. The landscape vegetation will be placed in a separate roll-off bin. This construction debris will be managed in accordance with Section 3.3.7 Residuals Management.

The excavation equipment will be decontaminated in accordance with the HSP in a designated equipment decontamination area prior to excavation activities. Soil will be excavated using an excavator or backhoe, and the excavated soil will be placed in covered stockpiles or roll-off bins. The excavation sidewalls will be sloped at a one to one ratio or shored as appropriate for geotechnical consideration. Impacted soil will be excavated until the soil sample arsenic concentrations are less than the HBRG or a maximum depth of 12 feet bgs is encountered. The approximate limits of the excavation are shown on Figure 3. Air monitoring for fugitive dust and organic vapors will be performed in accordance with the HSP. Excavated soil will be managed in accordance with Section 3.3.7 Residuals Management.

### 3.2.4 Confirmation Sampling

Confirmation soil samples will be collected upon completion of the proposed excavation activities to verify that residual arsenic concentrations are less than the HBRG. The proposed confirmation sampling criteria are listed below. The proposed sample locations are shown on Figure 3.

Confirmation samples will be collected as follows:



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- One soil sample for every approximately 400 square feet of excavation bottom.
- One soil sample for every approximately 200 square feet of excavation sidewall.

It may not be possible to collect undisturbed sidewall and bottom excavation samples from the excavation due to safety considerations. In this situation, soil samples will be collected using the excavator bucket. Each confirmation sample location will be marked with a stake so it can be surveyed as described in Section 3.3.6. Since PD-213 defines the southern limit of the excavation, a southern sidewall sample is not needed.

Confirmation samples will be placed in a cooler with blue ice, and submitted to Severn Trent Laboratories (STL), Los Angeles, for analysis under chain of custody protocol. The samples will be analyzed for arsenic by EPA Method 6010B.

#### 3.2.5 Decontamination

The equipment decontamination area will contain a plastic-lined cell to accommodate the entire piece of equipment to be decontaminated. High-pressure water and stiff brushes, if necessary, will be used to clean the equipment. Residuals generated from equipment decontamination will be collected for proper profiling and disposal. Soil will be removed as it accumulates. Wash water will be collected in a sump.

### 3.2.6 Surveying

Once the remediation excavation activities have been completed, a State of California Registered Land Surveyor will survey the limits of the excavation and confirmation sample locations to the nearest benchmark.

#### 3.2.7 Residual Management

Residuals generated during the excavation activities will include excavated soil, decontamination water, concrete and asphalt construction debris, and landscape vegetation. Soil will be placed in plastic-covered stockpiles or lined and covered roll-off bins. Decontamination water will be placed in 55-gallon drums. Upon completion of excavation activities, the soil and water will be sampled and characterized for disposition in accordance with the Site-wide Soil and Waste Management Plan (SWMP) (Ogden, 2000). Boeing Long Beach Division will be responsible for waste manifests and shipment. Concrete, asphalt, and landscaping construction debris will not be considered impacted, and will be disposed of at a construction debris landfill or recycling facility.



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#### 3.3 Import Soil Characterization and Backfill

Upon completion of excavation activities, the excavation will be backfilled with clean imported soil of similar composition. Up to approximately 900 cubic yards of fill will need to be imported to the Site to re-establish the pre-excavation Site elevation. Import sources in the area will be identified for use. Prior to acceptance, the import soil source will be reviewed for potential hazardous materials impacts. If no history of hazardous materials at the import source is identified, one soil sample will be collected (KJC, 2000). The sample will be submitted to STL for analysis for TPH (EPA Method 8015), VOCs (EPA Method 8260B), SVOCs (EPA Method 8270C), PAHs (EPA Method 8310), and Title 22 Metals (EPA Method 6010B/7471). If the import soil source has laboratory results less than the HBRGs, the import soil source will be accepted for Site use.

#### 3.4 Data Validation

A subcontractor (Laboratory Data Consultants, Inc. [LDC]) will perform two levels of data validation: Tier 2 and Tier 3 validation. The validation process will follow the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program National Functional Guidelines. Ten percent of the data will be subjected to Tier 3 analysis. An additional 20 percent of the data will be validated according to Tier 2 criteria.



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#### 4. SHALLOW SOIL EXCAVATION REPORT

Following completion of the remediation excavation and backfill activities, a report will be prepared and submitted containing the following:

- Summary of remediation excavation activities, including volumes of soil removed;
- Results of the excavation confirmation sampling;
- Figures illustrating the surveyed limits of the remediation excavation area and confirmation sample locations;
- Summary and results of the residual soil and decontamination water characterization sampling;
- Results of the imported soil characterization sampling;
- Copy of field and laboratory analytical results;
- Copies of manifests for wastes generated and transported off-site for disposal; and
- Discussion of results.

The report will be submitted to LARWQCB approximately 60 days after the completion of the excavation activities. The report will consist of a hard copy of text, tables, figures, and analytical data. An electronic version of the report on compact disc will also be provided with the hard copy document.



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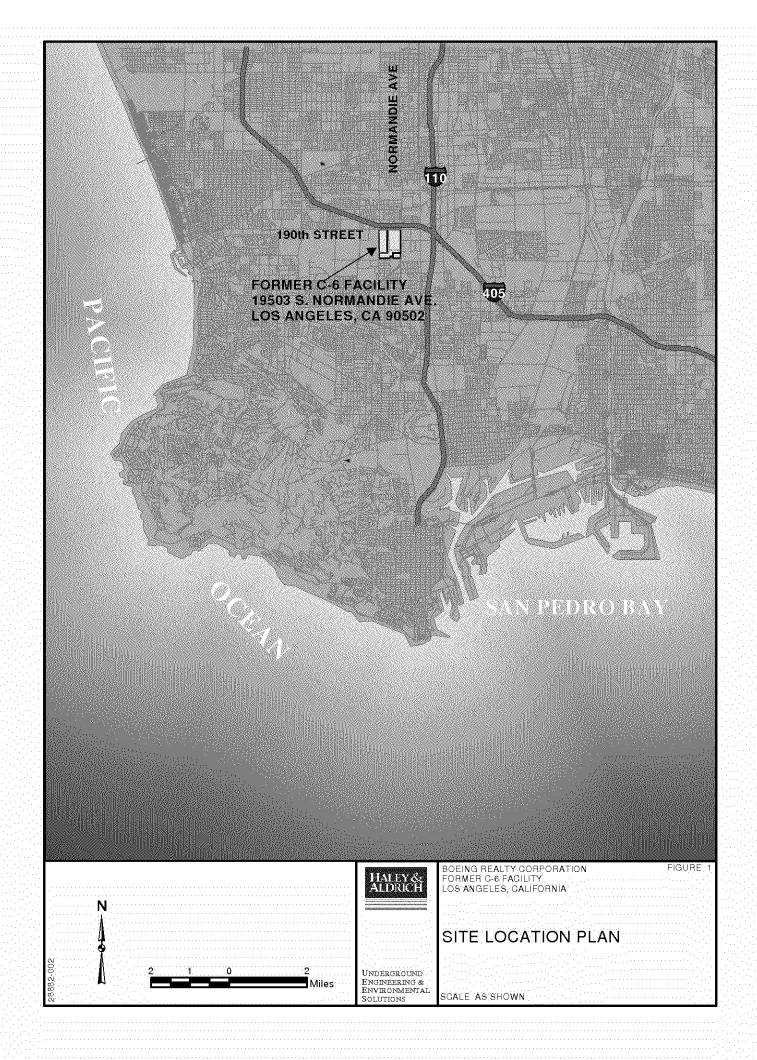
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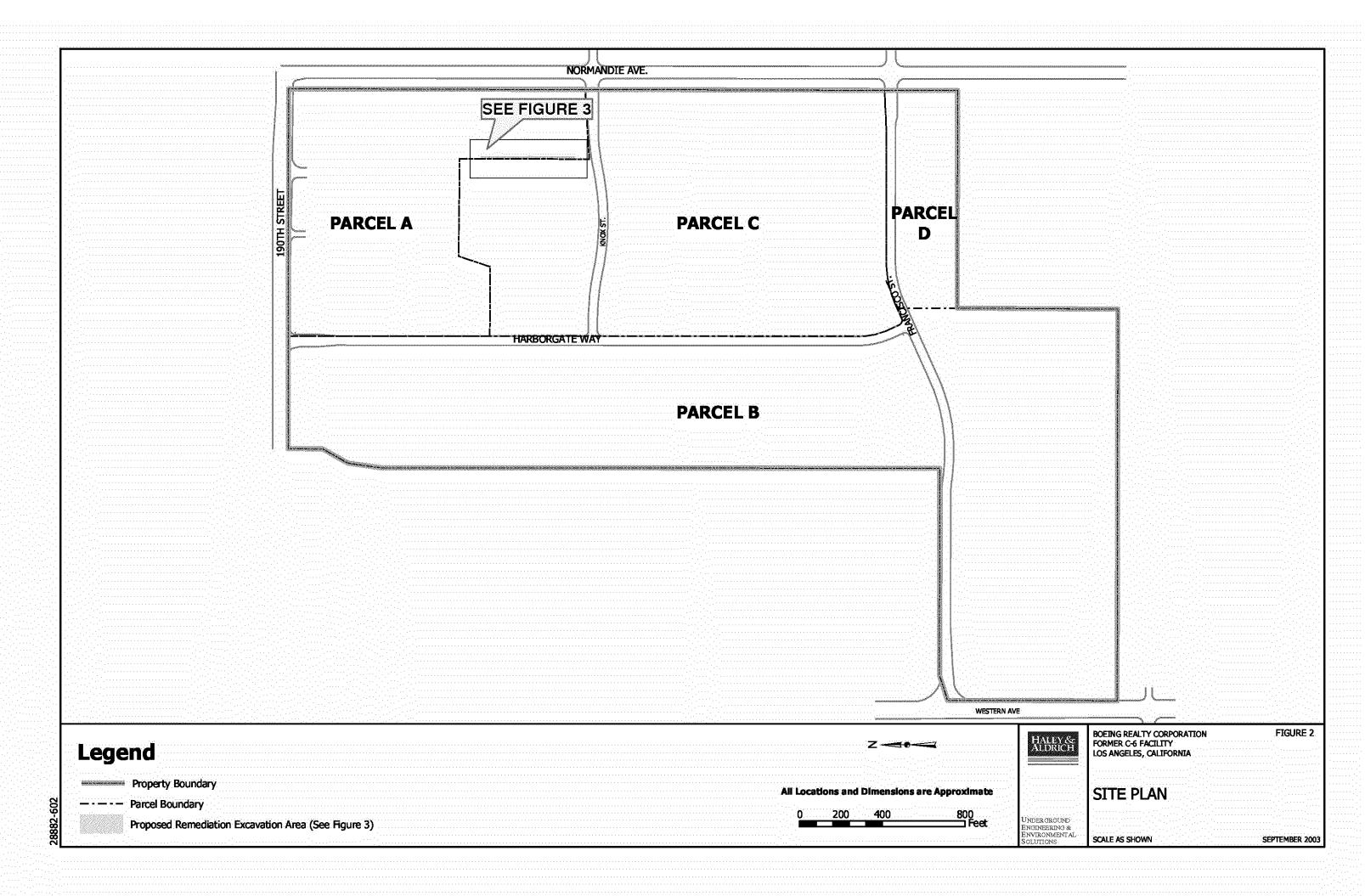
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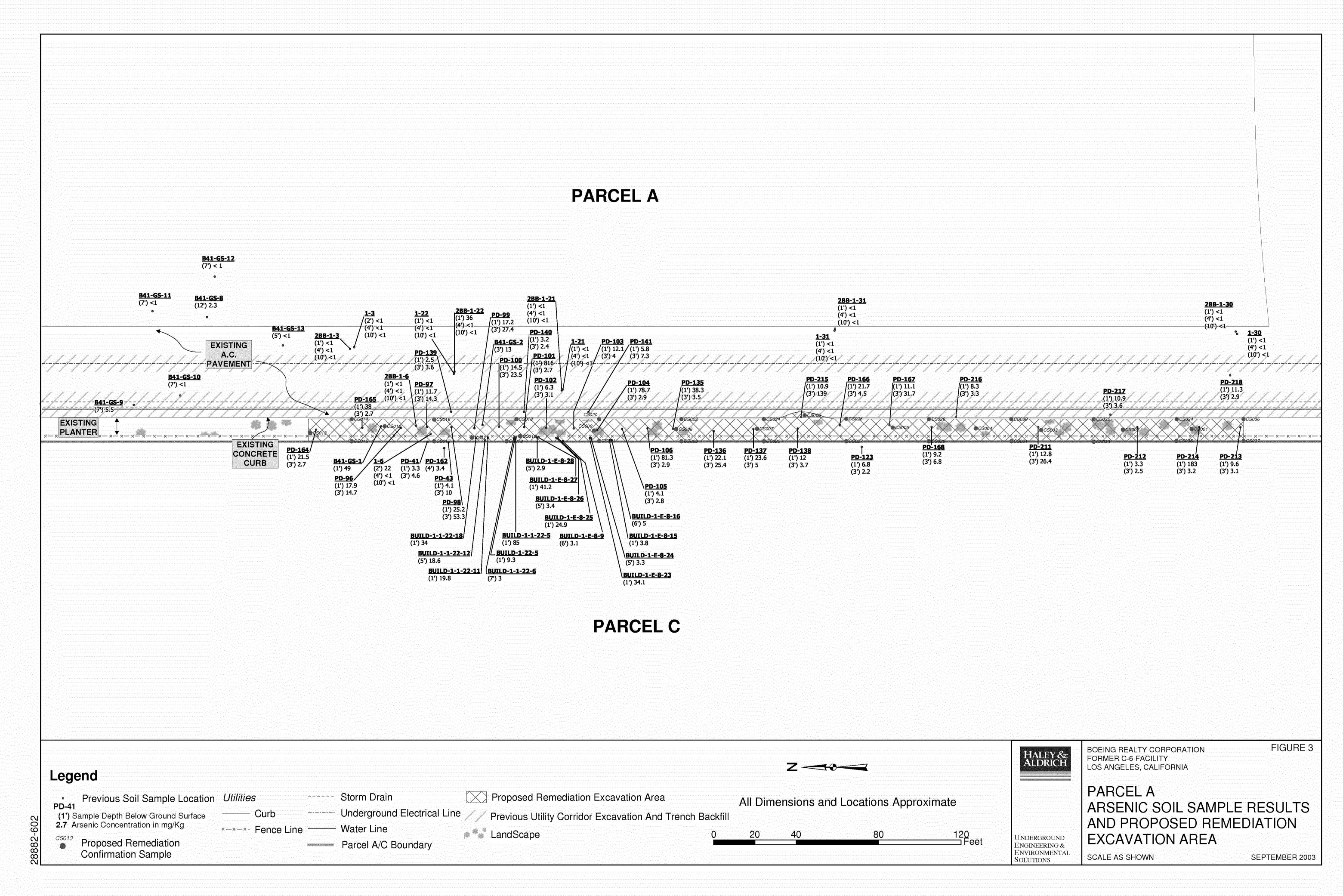
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